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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/070,531	06/05/2002	Edward S Yeung	215630	5546
23460	7590	12/22/2003	EXAMINER	
LEYDIG VOIT & MAYER, LTD TWO PRUDENTIAL PLAZA, SUITE 4900 180 NORTH STETSON AVENUE CHICAGO, IL 60601-6780			ROSENBERGER, RICHARD A	
			ART UNIT	PAPER NUMBER
			2877	

DATE MAILED: 12/22/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

### Application No.

10/070,531

### Applicant(s)

YEUNG ET AL.

### Examiner

Richard A Rosenberger

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 15 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-15, 17-19, 21-36, 38-46, 48, 49 and 51-55 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-15, 17-19, 21-24, 29-36, 43-46, 48, 49 and 51-55 is/are rejected.
- 7) ☒ Claim(s) 25-28, 38-42 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

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1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 51-53 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. New claims 51, 52 and 53 all call for “detection in the absence of a mask, slit *or spacer*” [emphasis added]. However, in all of the claims, and in the disclosure, the detection means is spaced from the samples; indeed the invention appears to lie primarily in this spacing. There clearly is, and must be, a “spacer” in the system in order to obtain the disclosed and claimed spacing of the detector from the samples. Thus the subject matter of these claims is not set forth in the specification as filed; the claims are inconsistent with the disclosure and are inconsistent with themselves.

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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4. Claims 51-53 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

These newly added claims set forth the placement of the detector “at distance such that light impinging on the detection means is substantially only that which is transmitted through the multiple containers” (claims 51 and 53) and the detection means is “positioned ... at a distance such that the stray light is less than about 1%” (claims 52). This is a functional result of some unclaimed structure which does not particularly point out and distinctly claim the invention. Thus sort of functional result does not set forth sufficient structure to adequately define the meets and bounds of the claimed subject matter.

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 11-15, 17-19, 21, 22, 4, 46, and 51-55 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yeung et al (US 5,324,401) in view of Gilby et al (US 5,900,934).

Yeung et al shows a method and apparatus for optically analyzing multiple samples simultaneously by providing an array of multiple containers (capillaries) each of which contains a sample to be analyzed, irradiating the array with light appropriate for the test, and detecting light from the samples with a detection means, a CCD camera, positioned apart from the array of containers.

Yeung et al uses the system to measure fluorescence of the sample, and his system is arranged for this test. However, it is known in the art that samples in capillaries can also be usefully tested by absorption; Gilby et al teaches this measurement by absorption, see in particular column 1, lines 51 – 62, which discloses "passing light of a certain wavelength through the capillary tube and then detecting the amount of light which has passed through the tube using a photodetector" and that the "wavelength used is chosen to coincide with an absorption band of the sample components of interest".

It would have been obvious to adapt the system of Yeung et al to measure absorption by directing the light directly through the capillaries as taught by Gilby et al and choosing the wavelength and intensity of light to coincide with an absorption band of the sample components of interest, also as taught by Gilby et al, because it is known in that art that absorption tests are useful tests known to give useful information about the sample, and it is known that absorption tests provide information that can be different than the information provided by fluorescence measurements.

Yeung et al teaches illuminating the capillaries individually to the test by means of optical fibers. Gilby shows, in figure 3, a manner of illuminating the capillaries individually for such absorption tests, which is analogous to the individual illumination of the capillaries in the test of Yeung et al. The mask 38 of Gilby et al is on the illumination side of the capillaries, not on the detection side. Yeung et al does not teach that any type of mask or the like is needed on the detection side of the fibers. Thus the light from the capillaries is detected “in the absence of a mask or slit” as in independent claims 1, 51, 52 and 53.

Yeung et al does not appear to explicitly state that the spacing of the detector from the capillaries is more than ten times the diameter of a capillary, but the disclosure make it plain that in is. There can be on the order of 1000 capillaries in the capillary array (column 9, line 26) and Yeung et al teaches that the lens can be a “standard distortion free camera lens” (column 9, lines 40-41). As there can be 1000 capillaries in the array, at only 10 times the diameter of a single capillary the lens would need a angle of view of more than  $177^\circ$ ; thus a “standard distortion free camera lens” would not have an angle of view close to the angle required for the extremely close placement of less than 10 times the diameter of a single capillary, and thus the disclosure of Yeung et al is consistent only with a placement of more than ten times the diameter of a single capillary.

The intent on purpose of the camera of Yeung et al is to detect the light form the capillaries; it is thus inconsistent with the teaching of that reference to place

the camera in any location in which it is not true that “the light impinging upon the detection means is substantially only that which is transmitted through the multiple containers”, since a placement such that that condition is not met would defeat the purpose of accurate detection. If the instant disclosure is to be believed, the obvious placement of the camera at a distance of more than ten times the diameter of one of the capillaries (see previous paragraph) will inherently meet this limitation, and is obvious for that reason as well as the fact that it would be inconsistent with the purpose of the measurement to place it where stray light is substantially present.

7. Claims 1-3, 8-16, 21-24, 29-36, 43-49 and 51-53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Komarniski (US 3,627,431) in view of Yeung et al (US 5,324,401).

Komarniski shows, in particular in figure 4, an apparatus and method in which there is a planar array of multiple containers containing samples, means for irradiating the planar array of multiple containers, and means for detecting the light from the containers. The reference does not specifically set for the distance of the camera from the array of detectors, those in the art could choose the distance to be appropriate for the size of the array, choosing available lenses to focus the light. Given the geometry of the arrangement, the claimed placement of at least ten times

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the diameter of a single container is within what those in the art would find as reasonable placement to obtain a non-distorted view of all of the containers using standard lenses.

Komarniski shows, in the embodiment of figure 4, using a film camera. It is known in the art that today electronic cameras are available and inexpensive enough for such use; see Yeung et al which uses such an electronic camera to view and analyze multiple samples. It would have been obvious to use such electronic cameras so the measurement data can be fed directly to a computer or other means of analysis rather than requiring the additional steps of developing and scanning the film.

It is noted that the system of Komarniski does not require a separate mask or slit.

8. The remarks filed 15 September 2003 argue that there is no teaching or suggestion to modify the device of Yeung et al to measure absorption rather than fluorescence. This is not correct. As set forth above, absorption measurements are known in the art, are known to be useful, and give different types of results than fluorescence-based measurements. The benefits of the parallel measurements of a system such as shown by Yeung et al for the known absorption test is motivation for the modification of the Yeung et al reference in the manner suggested.



The remarks argue that the system of Gilby requires a mask, while the instant invention "obviates the need for a mask". Independent claims 1 and 51-53 call only for detection absent a mask; that is, there is no mask on the detection side of the sample, which is shown by Gilby et al, which can place the mask only on the illumination side. However, this argument is persuasive in regard to independent claim 23, which claims there is no mask in the system (and not just in the detection arrangement).

9. The argued elimination of the mask is unobvious because the optical effects of the capillaries scattering the light; thus the argued and claimed absence of a mask in the system in which the samples are held in capillaries is unobvious; thus claim 25, and claims dependent thereon, contain allowable subject matter. With other types of containers which do not have the inherent light scattering effect as the capillaries, the absence of a mask would be obvious; Komarniski shows that with other types of containers a mask of the sort shown by Gilby et al need not be present. Claim 25 is objected to and would be allowable if rewritten in independent form including all of the limitations of parent claim 23; claims 26-28 and 38-42 are dependent from claim 25 and would thus be allowable for at least the reasons of claim 25 were claim 25 so rewritten.


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10. Papers related to this application may be submitted to Group 2800 by facsimile transmission. The faxing of such papers must conform to the notice published in the Official Gazette, 1096 OG 30 (15 November 1989). The fax number is (703) 872-9306

Any inquiry concerning this communication or earlier communications from the examiner should be directed to R. A. Rosenberger whose telephone number is (703) 308-4804.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-0956.

R. A. Rosenberger  
13 December 2003



Richard A. Rosenberger  
Primary Examiner